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HCI Howard Consultants, Inc.
Consulting Geotechnical Engineers & Geologists
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July 12, 1991
Project No. 3218-10

Mr. Gene Haeg
(b) (6)
(b) (6)
St. Maries, ID 83861

Re: Soil Contamination Assessment
Conoco
Plummer, Idaho

Dear Mr. Haeg:

Howard Consultants, Inc. has completed the authorized soil sampling and analysis around the underground gasoline storage tanks at the Conoco Station located on highway 95 in Plummer, Idaho. The analysis of the soil samples show that elevated levels of total petroleum hydrocarbons exist in the soil on the site.

INTRODUCTION

This report summarizes the results of our soil analysis and presents our findings and conclusions. The purpose of the evaluation was to obtain soil samples from around the underground storage tanks to evaluate the potential for contamination from petroleum products. We understood that at the time of the evaluation inventory control did not indicate any losses from the tanks. There may have been a small spill due to overfilling of one of the tanks. According to the owner, Mr. Gene Haeg, there had been a small leak from the pump island located adjacent to B-1. The leak was caused by the collision of a car into the pump structure, causing damage to one of the fittings. It is our understanding that the leak occurred sometime early in 1991 and lasted for approximately a week prior to being repaired. According to the owner, the leak may have consisted of up to several hundred gallons of diesel fuel. The exact volume of the spill/leak is unknown. Tightness testing of the tanks and lines had not been completed to date.

The scope of services included the drilling of four test borings; the collection of samples from the borings; description of the samples; laboratory analysis of the samples for total petroleum hydrocarbons (TPH) and hydrocarbon identification (HCID), and the writing of this final report. Authorization to proceed was received from Mr. Gene Haeg on June 4, 1991.

SITE CONDITIONS

The station site was relatively level but the general topography sloped gently down to the south. The site consisted of the station building and three pump islands. The parking and drive areas were asphalt paved.

It is our understanding that three gasoline storage tanks were buried in a common excavation on the site. The tanks were two 6,000 gallon tanks and one 10,000 tank holding unleaded, diesel and regular gasoline respectively. The tanks were installed approximately eight years ago. We understand the tanks were eight feet in diameter and were buried approximately six feet below the ground surface. The tank excavation was backfilled with native material. The locations of the vent pipes, electrical lines and pump feeder lines were inferred from the position of the tanks to the pump islands. Plate 1 presents a site schematic of the property.

EVALUATION PROCEDURES

Four soil test borings were drilled on June 18, 1991. The borings were augered by Ruen Core Drilling with a mobile B-50 drill rig to a depth of approximately twenty feet. Soils samples were taken at 5, 10, 15, and 20 foot depths in each boring. The approximate locations of the borings are shown on Plate 1 Site Schematic.

Soil samples were obtained with a standard split spoon sampler. The samples were examined for petroleum odor and visual evidence of hydrocarbons. The samples were placed in glass jars with aluminum lined caps and packed in ice for transport to an independent analytical laboratory in accordance with EPA sampling protocol.

The sampler was cleaned with Envirocare, a soap containing non-hazardous ingredients, as listed in 29CFR 1910.1200 between each use with a brief methanal rinse to remove residual contaminants. The drill augers were steam cleaned before each use. No drilling fluids were used during drilling.

SUBSURFACE CONDITIONS

The surface of the site was covered with approximately 2 inches of asphalt underlain by approximately 2 to 3 feet of gravel fill. Beneath the asphalt and gravel fill, native soil was encountered. The native soil consisted of an upper layer of clay which varied from black to medium brown. The clay was medium soft and damp and extended to approximately 8 to 10 feet below the ground surface. The black to brown clay was underlain by grey-green clay which was mottled, stiff to very stiff and damp. The clay extended to the maximum depth penetrated by the soil test borings. Ground water was not encountered in any of the borings at the time of this evaluation.

SOIL ANALYSIS RESULTS

Eight soil samples were submitted to an independent laboratory for analysis for total petroleum hydrocarbon content. The samples were analyzed for total petroleum hydrocarbons (TPH) in accordance with EPA 418.1 modified for soils. Three of the samples analyzed were from B-1, two were from B-2, one was from B-3, and one was from B-4. The depths of the samples analyzed ranged from 9 to 21 feet below the ground surface. The results of the TPH testing are attached on Plate 2. The samples analyzed from B-1 had TPH levels ranging from 343 ppm to 722 ppm. In B-2, the sample from 14 to 15 feet had a TPH of 61 ppm and from 18 to 19 feet a TPH of 517 ppm. The samples from B-3 and B-4 had TPH levels of 11 and 12 ppm respectively.

Hydrocarbon identification analyses were performed on two of the samples recovered from the exploratory borings. One of the samples from B-1 from 9 to 10 feet was analyzed, and in B-2 from 18-19 feet below the ground surface. The results indicate that the contamination was from diesel rather than gasoline.

CONCLUSIONS

Based on the soil analyses and known history of the site, it is our opinion that relatively low to moderate levels of contamination exist at the site. The highest concentrations were detected within the soils encountered in B-1 and B-2. Lower concentrations were measured in B-3 and B-4. A section presented on Plate 3 shows a schematic interpretation of the contamination on the site.

The Idaho Division of Environmental Quality (IDEQ) currently considers a residual TPH concentration of 1000 ppm for diesel fuel the acceptable level for clean-up requirements. The laboratory testing indicated that the contamination on the site consisted of diesel fuel, and did not exceed the level of 1000 ppm set by the IDEQ.

Although the samples we recovered did not have residual TPH levels which require clean-up by current IDEQ Standards, contamination was detected at depths of 20 feet below the ground surface and approximately 15 feet from the pump island. The 722 ppm encountered in B-1 is approaching unacceptable TPH levels. The contamination may be the result of the damaged fitting but we recommend that tank tightness testing be performed to verify the integrity of the tank and pipe system.

We appreciate the opportunity to be of service to you on this project. If you have any questions or require further assistance, please do not hesitate to give us a call.

EVALUATION LIMITATIONS

This report has been prepared to assist in the assessment of the petroleum contamination at the Conoco station in Plummer, Idaho. Our services consist of professional opinions and conclusions made in accordance with generally accepted geologic and geotechnical engineering principles and practices. This acknowledgement is in lieu of all warranties either expressed or implied.

The following plates accompany and complete this report:

Plate 1 - Site Schematic
Plate 2 - Soil Sample Analysis
Plate 3 - Site Section

Sincerely,

Howard Consultants, Inc.

REGISTERED PROFESSIONAL GEOLOGIST
BRENDA J. GARCIA
664
STATE OF IDAHO

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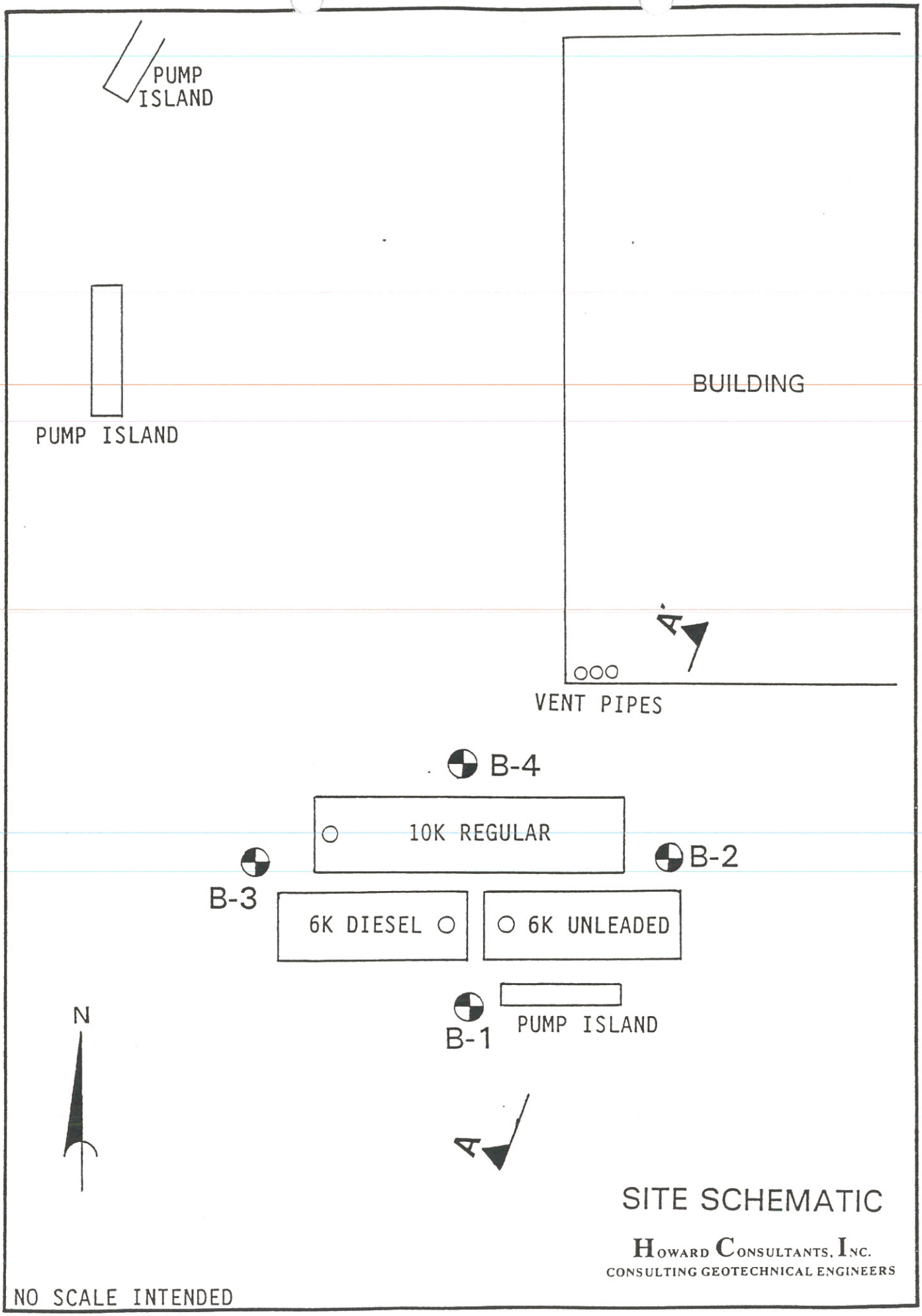

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SITE SCHEMATIC

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CONSULTING GEOTECHNICAL ENGINEERS

PLATE 1

SOIL SAMPLE ANALYSIS

BORING (PPM)	DEPTH (ft.)	ANALYSIS	CONCENTRATION
B-1	9 - 10	TPH	722
B-1	14 - 15	TPH	343
B-1	20 - 21	TPH	470
B-2	14 - 15	TPH	61
B-2	18 - 19	TPH	517
B-3	14 - 15	TPH	11
B-4	14 - 15	TPH	12
B-1	9 - 10	HCID	Gasoline < 25 Diesel 500-1000
B-2	18 - 19	HCID	Gasoline < 25 Diesel 500-1000

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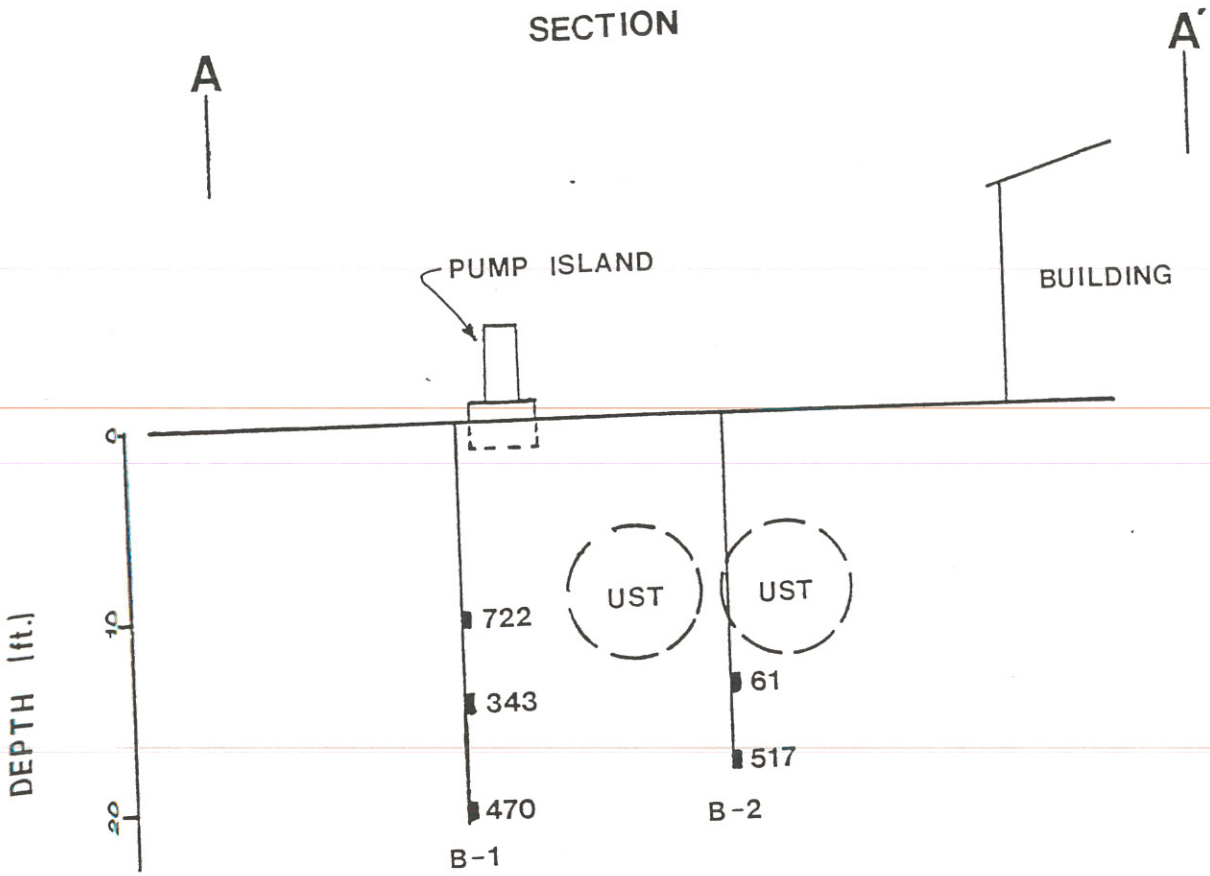

TPH CONCENTRATIONS ARE IN PPM

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No Scale Intended

PLATE 3